

Wildlife and Forest Habitat Restoration

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Old-Growth Associated Species in the CRW-HCP

- Northern Spotted Owl
- Northern Goshawk
- Marbled Murrelet
- Brown Creeper
- Pileated Woodpecker
- Olive-sided Flycatcher
- Vaux's Swift
- Canadian Lynx
- Fisher
- Wolverine
- American Marten
- 11 Bat Species
- 4 Invertebrate Species
- Three-toed Woodpecker



Key Wildlife Habitat Elements

- *Species Diversity*
 - ⇒ Deciduous, Conifer Trees
 - ⇒ Shrubs, Herbs, Fungi
- *Structural Complexity*
 - ⇒ Variety of Tree Sizes, Spacing
 - ⇒ Foliage Layers, Canopy Gaps
 - ⇒ Large Snags, Logs
- *Special Habitats*
 - ⇒ Wetlands/Riparian
 - ⇒ Talus/Rock Outcrops



Second-Growth Forest Habitat Cedar River Municipal Watershed



Forest Habitat Restoration Versus Commercial Thinning - Habitat Effects

- *Commercial Thinning - Maximize Tree Growth*

- ⇒ Cut All the Smallest Trees

- ⇒ Even Tree Spacing

- ⇒ No Canopy Gaps

- ⇒ No Leave Areas

- ⇒ Favor One Tree Species

- ⇒ Cut Snags

- ⇒ Remove Down Wood



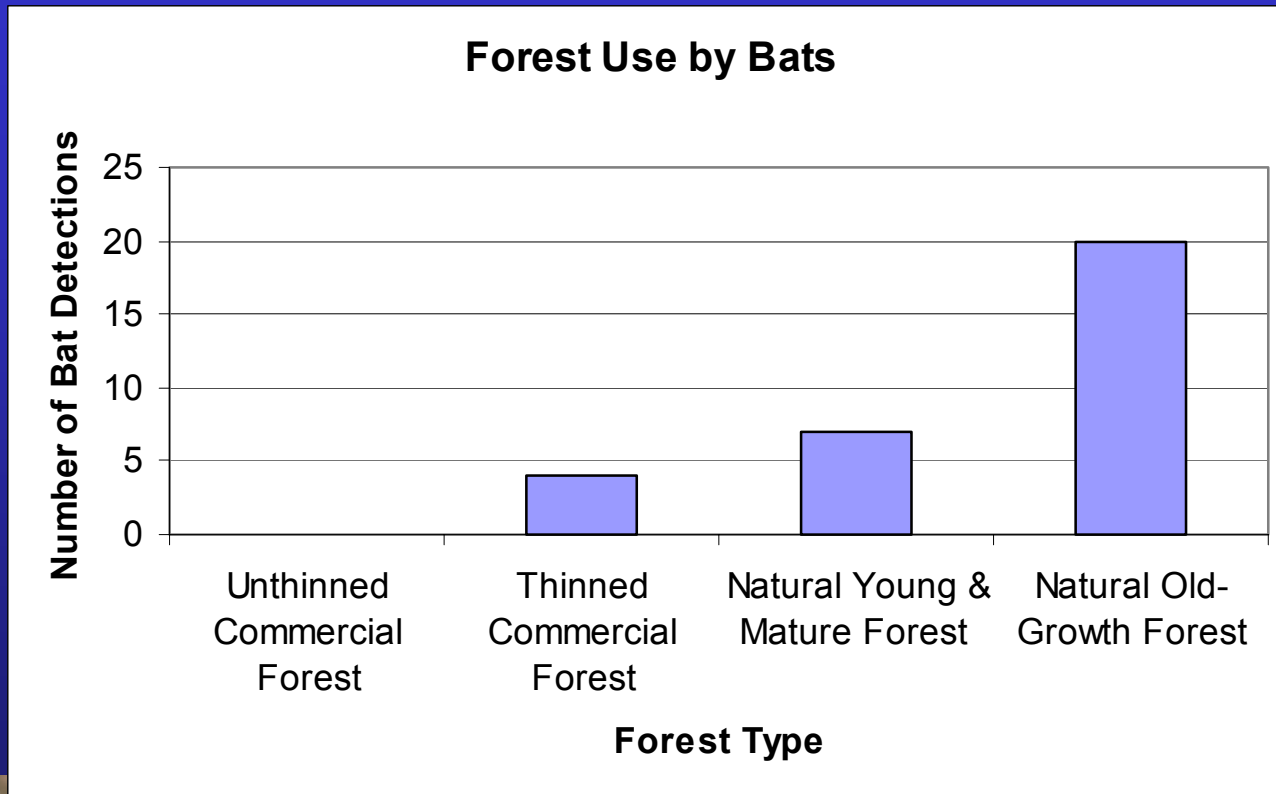
Forest Habitat Restoration Versus Commercial Thinning - Habitat Effects

- *Forest Habitat Restoration - Increase Biodiversity and Structural Complexity*

- ⇒ Retain Diversity of Tree Sizes
- ⇒ Create Variable Tree Densities
- ⇒ Create Variable Tree Spacing
- ⇒ Create Canopy Gaps/Leave Areas
- ⇒ Retain Unique Tree Structures
- ⇒ Retain/Plant Variety of Species
- ⇒ Retain/Create Snags, Down Wood



Commercial Thinning Studies: Bats



Commercial Study: Erickson 1997
Natural Study: Thomas & West 1991



Commercial Thinning Studies: Birds

- *Unthinned Sites:*

- ⇒ Fewest Total Birds
- ⇒ Lowest Number Species
- ⇒ No Bird Species Peaked

- *Thinned Sites:*

- ⇒ Increased Breeding Birds
- ⇒ Increased Wintering Birds



Commercial Thinning Studies: Small Mammals

- *Unthinned Sites:*

- ⇒ Overall Very Low Abundance

- ⇒ Only Two Species More Abundant



- *Thinned Sites:*

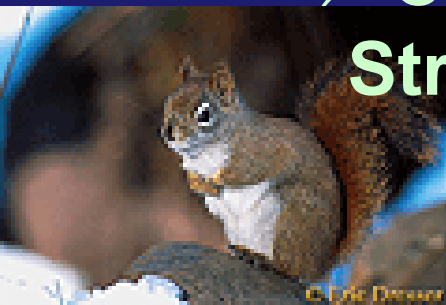
- ⇒ Most Species Increased Abundance

- ⇒ 1.5 Times More Mammals



- *Both Thinned and Unthinned:*

- ⇒ Communities Incomplete, Different in Structure from Natural Sites



Commercial Thinning Studies: Amphibians

- *Unthinned Sites:*
 - ⇒ Only 3 Most Common Species
- *Thinned Sites:*
 - ⇒ 11 Species Captured



Commercial Thinning Studies: Plants

- *Thinned Sites:*
 - ⇒ Double the Number of Species
 - ⇒ Increased Herb Cover
 - ⇒ Lichen (*Lobaria sp.*) Present



Variable Density Thinning Versus Commercial Thinning: 5 Year Results

- *Northern Flying Squirrels*

⇒ Only Short-Term Declines after VDT



- *Native Plant Diversity*

⇒ Increased 50% after VDT, Compared With Commercial Thins



- *Exotic Plants*

⇒ Only 4 Exotics Persisted After VDT

High Quality Wildlife Habitat

- Structural Complexity (Shelter, Cover, Nest Sites)
- Plant Species Diversity (Food, Cover, Nest Sites)
- Reduced Clutter (Movement)
- Snags/Down Wood (Nest, Roost Sites)
- Adequate Patch Size (Reproduction)
- Connectivity (Dispersal)

